

## AVALON and AVALON DUO Printer USER MANUAL



This guide is to assist you with the set-up and use of your Magicard Avalon ID card printer.

The printer models covered by this document include:-

- Avalon Std Printer - M9006-644E
- Avalon Mag Printer - M9006-654E
- Avalon Duo Std Printer - M9007-224E
- Avalon Duo Mag Printer - M9007-225E



standard



standard



option



Avalon Duo  
only



Avalon 105 &  
Avalon Duo 105  
only



pending





www.ultramagicard.com

# AVALON and AVALON DUO Printer USER MANUAL

## Index

<b>Before Use</b> .....	<b>3</b>
Safety Instructions .....	3
About this guide.....	3
<b>1. Installing the Printer</b> .....	<b>4</b>
<b>2. Installing the <i>UltraDriver</i></b> .....	<b>6</b>
<b>3. Choosing the right Dye-Film Ribbon</b> .....	<b>7</b>
<b>4. Loading the Dye-Film Ribbon</b> .....	<b>7</b>
<b>5. Choosing the right Cards</b> .....	<b>8</b>
<b>6. Loading the Cards</b> .....	<b>9</b>
<b>7. Cleaning your Printer</b> .....	<b>10</b>
Cleaning is Important.....	10
Cleaning is Easy and Inexpensive.....	10
The Magicard Cleaning System.....	10
Cleaning Supplies.....	11
Every 250 Prints or Sooner .....	11
Cleaning the Printhead .....	12
<b>8. Printer Driver settings</b> .....	<b>13</b>
The Printer Tab.....	13
The Output Settings Tab .....	15
The Advanced Tab: .....	19
The Save & Restore Tab: .....	21
<b>9. Uninstalling the <i>UltraDriver</i></b> .....	<b>22</b>
<b>10. Magicard Support Utility</b> .....	<b>23</b>
<b>11. Troubleshooting</b> .....	<b>25</b>
<b>12. Warranty</b> .....	<b>27</b>
Limited Warranty Information.....	27
<b>13. Technical Support, Service, and Warranty Enquiries</b> .....	<b>28</b>
<b>14. Contact Us (Sales):</b> .....	<b>29</b>
<b>15. EMC</b> .....	<b>31</b>
Federal Communications Commission (FCC) Statement .....	31
Canadian Department of Communications Statement.....	31
EU Declaration of Conformity .....	31

## AVALON and AVALON DUO Printer USER MANUAL

### Before Use

#### Safety Instructions

Please read all of these instructions before using your printer. Observe the markings on the rear panel of the printer.

- To prevent electric shock do not remove covers.
- Do not attempt to service the printer yourself.
- There are no user serviceable parts inside. In the event of malfunction, refer servicing to your nearest Ultra Electronics Service Center.
- Use only a power source within the limits marked on the rear panel label.
- Take care not to spill any liquid on the printer.
- Ensure that the power supply cord is not longer than 6 feet (2 metres) and includes a properly grounded connection.
- If using this printer in Germany:  
To provide adequate short-circuit protection and over-current protection for this printer, the building installation must be protected by a 16 Amp circuit breaker.  
Bei Anschluß des Druckers an die Stromversorgung muß sichergestellt werden, daß die Gebäudeinstallation mit einem 16-AÜberstromschalter abgesichert ist.

#### **Warnings, Cautions and Notes**

Throughout this guide and in text on the CD, the following conventions are used to identify important information.

**WARNING** - Warning messages indicate where personal injury could result from not following the correct procedures.

**CAUTION** - Caution messages indicate where damage to equipment could result from not following the correct procedures.

**NOTE** - Notes convey important information that is identified within the text.

#### **When Handling the Printer**

Avoid touching the thermal printing edge of the thermal printhead. Grease and contamination will shorten its life.

Before transporting the printer, remove the dye film and card hoppers.

Pack the printer in its original packaging.

If you have a problem with the installation or operation of your Magicard printer, please first recheck to ensure that you have followed the instructions given in this guide and on the CD ROM.

We also recommend that you visit our website [www.ultramagicard.com](http://www.ultramagicard.com) where additional FAQs and technical support information is available, and a 'contact us' email form to report any problems.

#### About this guide

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The HoloKote™ feature of Magicard® printers is protected by US PATENT No: 5,990,918 and by European PATENT SPECIFICATION EP 0 817 726 B1.

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## AVALON and AVALON DUO Printer USER MANUAL

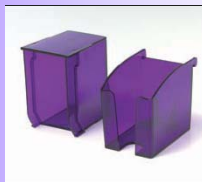
### 1. Installing the Printer (copy of the QuickStart Guide)

#### 1. Unpacking

Avalon Printer



Hopper and Stacker



Power Cable



USB Cable



Driver CD



#### 2. Consumables

Cleaning Cards & Roller



Dye Film and Cards



**Note:** To complete installation and begin using your printer you will require a roll of Magicard dye-film and cards (not included).

#### 3. Printer location requirements

- Sufficient space for:
  - opening the top cover
  - cable access at the rear.
  - allowance for air circulation.
- An adequately ventilated dust free room.
- Access to a properly grounded power supply.
- Ambient temperature +10 to 30 degrees C.
- Relative humidity 20 - 70%.
- Protection from direct sunlight and chemicals.
- Protection from abrupt temperature changes.

#### 4. Attach the card output stacker



Insert the card collection stacker into the aperture in the front panel and hook into place. The stacker can hold up to 50, 30mil thick cards, after which it should be emptied. The printer can be operated without the stacker if you wish.

#### 5. Attach the Card Feed Hopper

1. Open a clean pack of cards and make sure they are not sticking together. Load the cards into the feed hopper. Avoid touching the card surfaces because finger marks can effect image quality.

**Note:** When using magstripe cards, ensure the stripe is on the right and underneath when viewed from the front.



2. Tilt the loaded hopper back as shown, and lower gently into the receptacle at the rear of the printer. You will be able to lower the hopper about an inch (25mm).
3. At this point, tilt the hopper forward to the vertical position and lower all the way down until the hopper is completely within the body of the printer.

#### 6. Prepare the cleaning cassette

Press down on the top cover, operate the top cover release catch and open the cover. First remove the white tape holding the black plastic cleaning cassette. Grip the handle between finger and thumb, then push and release the cleaning cassette. Remove the orange tape and protective layer from the disposable cleaning cassette roller.



**Note:** This is a good time to familiarise yourself with the way that this automatic cleaning system is designed to operate. Finally replace the cleaning cassette by inserting the roller shaft into the U shaped guides and clicking into place.

#### 7. Install the dye film

1. Open a new roll of dye film.
2. Place the loaded spool into the rear clips and press it into place. The orientation is correct when the bar code on the end of the spool to the left hand side when viewed from the front. Rotate to make sure that the slot engages with the lug.
3. Place the empty take up spool into the front clips, and adjust the film tension so that the film is lying flat and straight between the two spools.
4. Press the top cover down until it clicks into the closed position. The printer will automatically recognize the type of film that has been loaded.



#### 8. Plug in the printer

Make sure that the printer is turned Off, i.e. the On/Off button is slightly protruding from the front panel.

Plug the power supply lead provided into the socket on the rear panel of your printer, and the other end into a properly grounded electrical outlet.



## AVALON and AVALON DUO Printer USER MANUAL

### 9. Print a test card

1. Switch the printer on. You will hear some motor activity and see the indicators flash.
2. When ready, the red Error indicator should be off and the green indicator on.
3. Press and release the small test push button on the rear panel once.
4. After several seconds, the printer will print a test pattern on a card, and feed it to the card output stacker. This indicates that all is well with the printer, i.e. cards loaded, dye film loaded, power is on and lid is closed.



### 10. Turn to [Page 6](#) for full instructions on how to Install the Printer Driver

On completion of installation, you will be able to print cards.





## AVALON and AVALON DUO Printer USER MANUAL

### 2. Installing the *UltraDriver*

- 1. Important** - Make sure the printer is **switched off**.
- Load the driver CD ROM into the PC you have connected to the printer. If the CD does not run automatically, click the start button, then click on "run". Type "D:\autorun" (where D is the drive letter for your CD drive), then press the return key.

The driver CD 'Splash Screen' will appear. Select your printer model – **Avalon** or **Avalon Duo**.

3. Select the "Install Software" option

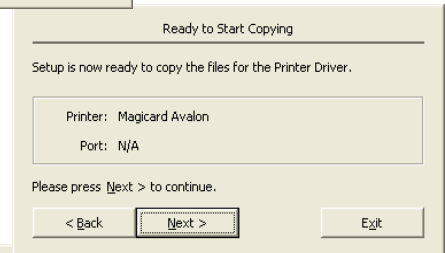
4. Then select the "Install Driver" option

The driver installation will begin and the driver installation window will open

5. Click 'Next >' on the 'Available Platforms' screen.

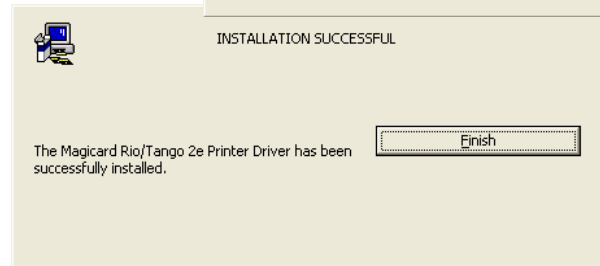


6. Click 'Next >' to start copying the driver files. Then wait while the USB driver files are installed and registered.



8. At the "Installation Successful" window – click 'Finish'.

9. Make sure the printer is connected via the USB cable to your PC. Then switch **ON** the printer. There will be a short delay while the printer initializes. Then Windows will detect the printer via the USB connection and will complete the installation.



- It is recommended that you test the new driver installation by printing a Windows **Test Page** from the 'General' tab of the Printer Driver Properties – the Windows Logo should be printed in the centre of the card.

(To configure the new Printer Driver's settings please see **Section 8 – Printer Driver Settings** – for a detailed explanation of each setting).



## AVALON and AVALON DUO Printer USER MANUAL

### 3. Choosing the right Dye-Film Ribbon

- **AV1** dye-film is the appropriate choice for colour printing
- **LC1** dye-film can also be used for colour printing.
- **LC8** dye-film, for the Tango 2 models only, is more economic when printing in colour on one side and black on the other.
- **LC6/LC3** dye-film - where cost is critical, monochrome printing is a fraction of the cost of colour printing.



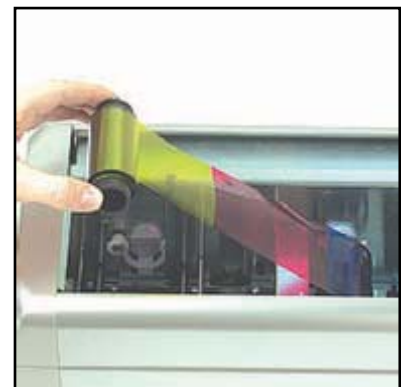
The table below is a guide to selecting the best dye-film to use for any intended application.

Your Printer ↓	Full colour cards or monochrome	Ribbon Choice	Cards Per ribbon	Ribbon Panel layout	Part Number
Magicard Avalon	Full Colour	LC1	350 one side only	YMCKO	M9005-751
	Full Colour	AV1	250 one side only	YMCKO	M9006-566
	Monochrome: Black Red Blue Green Gold Silver White	LC3	1000 one side only	K	M9005-753 M9005-753-1 M9005-753-2 M9005-753-3 M9005-753-5 M9005-753-6 M9005-753-7
	Black & Overcoat	LC6	600 one side only	KO	M9005-756
Magicard Avalon Duo	Colour front & Black back	LC8	300 front & back	YMCKOK	M9005-758
	Colour front & color back	LC1	175 Front & Back	YMCKO	M9005-751

Ribbon Panel Layout Key: Y=yellow, M=magenta, C=cyan, K=resin, O=overcoat (No Color)

### 4. Loading the Dye-Film Ribbon

1. Open the top cover by pushing down on it and operating the release catch on the top of the printer.
2. Remove the used dye-film by gently pulling both spools upwards until disengaged from the clips. Take care not to bend and break the clips.
3. Open a new roll of dye-film.
4. Place the loaded spool into the rear clips and press it into place. The orientation is correct when the barcode on the end of the spool is on the left. Rotate the dye film roll to allow the core to lock into position.
5. Place the empty take up spool into the front clips, and adjust the film tension so that the film is lying flat and straight between the two spools.
6. Gently close the top cover until it clicks into the closed position. The printer will automatically recognize the type of film that has been loaded and move it to the correct printing position.



## AVALON and AVALON DUO Printer USER MANUAL

### 5. Choosing the right Cards

#### Card Material

Not all white plastic cards are the same. For best image quality always use high quality video grade PVC cards. Pure PVC card stock or laminated PVC/polyester cards are available. The latter are more durable and better suited to heavy use and heat lamination when required. For access control and smart card applications, your dealer should provide the appropriate type for direct to card printing. For good consistent results, stick to a single variety of good quality cards, such as those available from your Magicard dealer.

#### Card Size:

- Standard (CR80) = 3.375" x 2.125" (86.5 mm wide x 53.98mm high).

#### Card Thickness:

- Minimum - 0.020" ( 0.51mm).
- Standard - 0.030" ( 0.76mm).
- Maximum - 0.063" ( 1.60mm).

#### To obtain good quality prints the card must be:

- Glossy white.
- Free from dirt and grease.
- Free from surface contamination.
- Free from pits and bumps in the surface.
- Free from burrs at the edge of the card.
- Completely flat.



#### Printable Area of the Card

Both the Rio and Tango printer offer high quality edge to edge (full bleed) printing. Thus the surface of the card may be printed edge to edge. Dye cut PVC cards typically have an edge roll off (bevel) which can result in a fine white line around the edge of full bleed printed cards. When setting up your card design using your graphics software on your PC, you should use a maximum page size of 1026 pixels (3.45"/87.5mm) x 642 pixels (2.13"/54mm).

#### Self-Adhesive Cards

We recommend only self adhesive cards supplied by Ultra Electronics via your Magicard dealership. There are many different types of self-adhesive cards. Thorough investigation and testing has shown that poorer quality or incorrect card types will cause problems in the printer. These problems range from poor image quality, failure to feed from the card hopper and dye-film being cut through to cards getting jammed in the roller mechanism.

#### Contact Chip Cards

Smart cards must conform to the ISO 7816 specification, with the chip contacts being below the surface of the card. It is unwise to print graphics or text directly adjacent to the chip as image quality may be affected.

#### Contactless (Proximity) Chip Cards

Proximity cards must be completely flat with no sign of the chip or antenna being visible in the surface of the card.

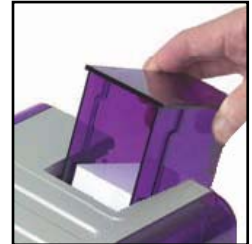


## AVALON and AVALON DUO Printer USER MANUAL

### 6. Loading the Cards

1. Lift the card feed hopper vertically until significant resistance is felt, then tilt it backwards until it comes to a stop at an angle of about 30°.

(If it is necessary to completely remove the card feed hopper for any reason, simply lift it again while it is held at this angle.)



2. Open a clean pack of cards.

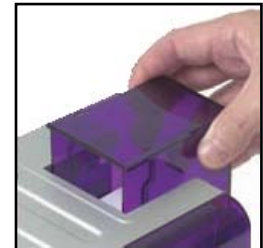
(Ensure they are not electro-statically charged and sticking together).

Avoid touching the card surfaces as finger oils will degrade the image quality.



3. Tilt the hopper forward to the vertical position, and lower all the way down until it is completely within the body of the printer.

(For loading Mag Stripe or HoloPatch cards see box on the left.)



#### **Loading Magnetic Stripe Cards**

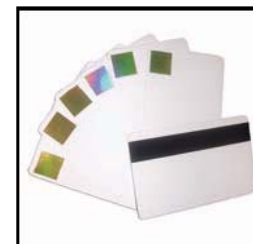
Make sure the stripe is on the right and underneath when viewed from the front of the printer.

#### **Loading HoloPatch® Cards**

The standard position gold foil patch on the cards should be on top, and on the right-hand side when viewed from the front of the printer.

#### **Loading Infra-Red Barcode Cards**

The black edge must be on the right-hand side when viewed from the front of the printer.



## AVALON and AVALON DUO Printer USER MANUAL

### 7. Cleaning your Printer

#### Cleaning is Important

- The **most important thing** you can do to **ensure card print quality** and the **ongoing reliable operation** of your printer is to **perform regular cleaning cycles** to remove dust and debris from the print rollers.
- Plastic cards attract dust. Dust then gets 'printed' into the card surface causing unsightly blemishes and **possible damage to the printhead**.
- Your Magicard printer has built-in cleaning rollers to remove dust from the card stock. These rollers **need to be cleaned** periodically to remove the dust and debris accumulations.



#### Cleaning is Easy and Inexpensive

If you have not already done so, **order a cleaning kit** – see the 'Cleaning Supplies' box on the next page.

- A clean printer produces better quality cards, as dust and dirt are not present when the card is being printed.
- A clean printer is much less likely to require factory maintenance, and the print head in your printer will last for many years of normal use. Remember, large particles of dirt can damage the printhead.
- Magnetic encoding suffers when rollers are not clean.

#### The Magicard Cleaning System

There are three main parts to your printer's cleaning system - a Cleaning Card, a Cleaning Roller and a Cleaning Pen:

1. You use a Cleaning Card to remove dirt from the print path. This should be used after every 250 prints (every time you replace your ribbon). If you print only a few cards a day, we recommend that you clean the printer more often.
2. There is a disposable Cleaning Roller in the printer, which should be replaced after every 1000 prints (roughly after using 4 rolls of ribbon).
3. There is also a Cleaning Pen, which is used to clean the printhead. We recommend you use this if any lines are seen on printed cards.



**To clean your printer, follow the three main steps below.**

## AVALON and AVALON DUO Printer USER MANUAL

### Cleaning Supplies

Three cleaning cards are bundled with each new Avalon printer. **You can purchase additional cleaning kits**, which include cleaning cards, rollers and pens.

#### Cleaning Kits for Europe, Middle East, Africa & Asia

- Part # M9005-761 - 10 cleaning cards, 5 rollers and a cleaning pen.

#### Cleaning Kits for North and South America

- Part # N9005-761 Medium - 10 cleaning cards, 3 rollers, and 2 cleaning pens.
- Part # N9005-761 Large - 20 cleaning cards, 6 rollers, and 3 cleaning pens.

### Step 1. Every 250 Prints or Sooner –

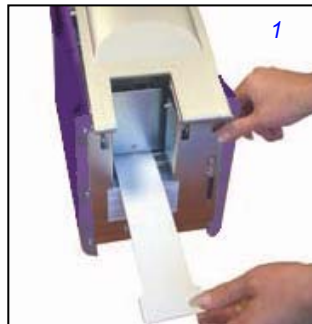
#### Using a cleaning card

We recommend that you clean your printer using a cleaning card after every **250** prints or each time you replace the dye-film. You should do this more often if you print only a few cards a day.

#### To clean the card feed mechanism:

- The printer must be switched ON.
- Remove the card hopper and open the top door (the red light comes on).
- Ensure the dye film is not touching the base of the printer inside. If it is, take up the slack by winding the supply spool backwards or remove the dye film before starting the cleaning cycle.
- Take a fresh cleaning card from its packaging.

- Insert the narrow end into the card feed slot (*picture 1*).



- Press the black button on the back of the printer (located above the USB connector). The card is drawn into the printer (*picture 2*) and then ejected. Repeat this several times with both sides of the same card.



- To ensure that the rear feed rollers located under the card hopper are thoroughly cleaned, set the printer to its cleaning cycle, and instead of inserting the card, simply hold it against these rollers (*picture 3*).



## AVALON and AVALON DUO Printer USER MANUAL

### Step 2. Every 1000 Prints -

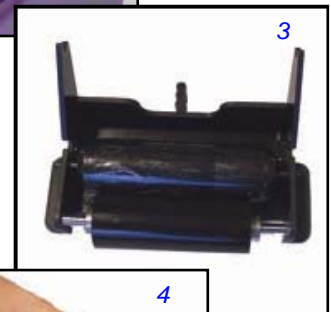
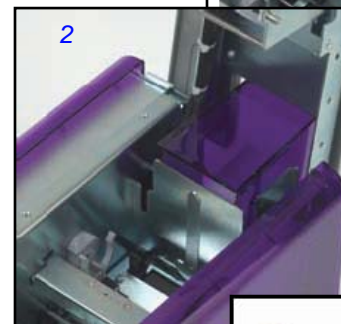
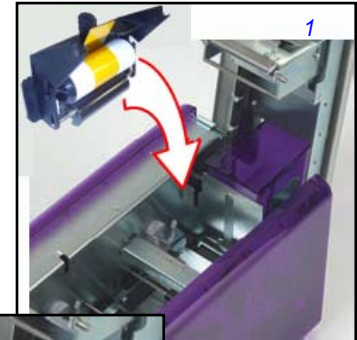
#### Changing the cleaning roller

There is a **cleaning cassette** inside the printer which holds a **cleaning roller** (*picture 1*). We recommend that this roller is replaced after every **1000 prints**, or **sooner** if it looks dirty.

You re-use the cassette, and you replace the roller within it.

#### To replace the cleaning roller:

- Switch off your printer.
- Open the top cover. Locate the black cleaning cassette towards the rear of the internal compartment.
- To remove the cleaning cassette, hold it between thumb and forefinger by the tab on the top of the cassette (*picture 2*). Push down lightly on it, and then lift it out.
- You now have the cassette and roller assembly out of the printer. This is a two roller assembly. The bottom roller is permanent and the top (larger) roller is disposable (*picture 3*).
- Remove the used roller from the cassette (*picture 4*).
- Take a **new roller** and **remove the protective white** cover from around the roller.
- Insert the new roller into the cassette, **ensuring** that the roller is **'sprung'** in the cassette.
- Insert the cassette back into the printer ensuring it is seated correctly.

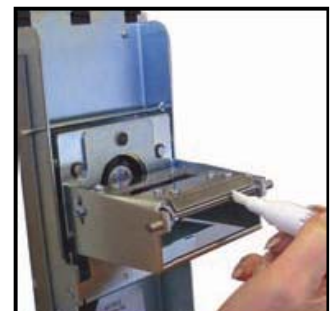


### Step 3. Cleaning the Printhead

You should clean the printhead if any lines are seen on printed cards.

#### To clean the printhead:

- Use the special **printhead cleaning pen** from your Magicard printer cleaning kit. See 'Cleaning Supplies'.
- Open the printer and draw the pen several times across the length of the printhead.

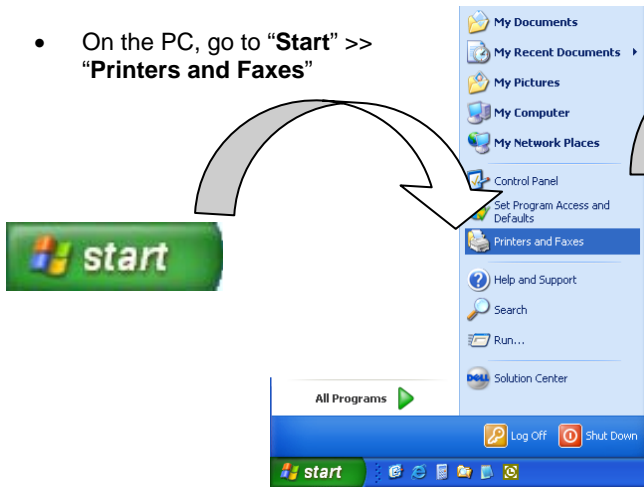


## AVALON and AVALON DUO Printer USER MANUAL

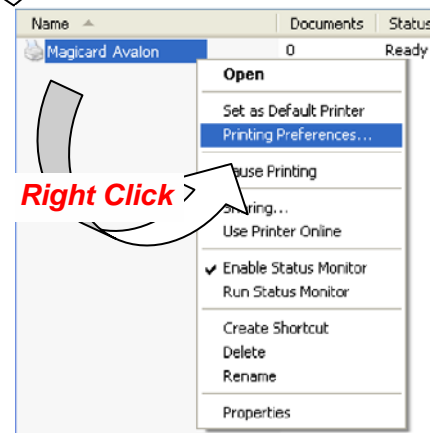
### 8. Printer Driver settings

To access the Printer Driver Settings :-

- On the PC, go to "Start" >> "Printers and Faxes"

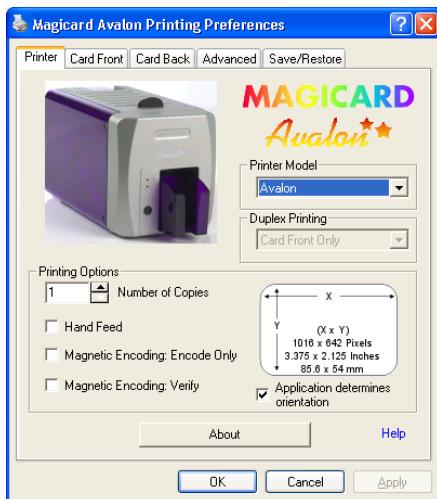


- Right mouse click on the Magicard Avalon printer and select the "Printing Preferences..." option.



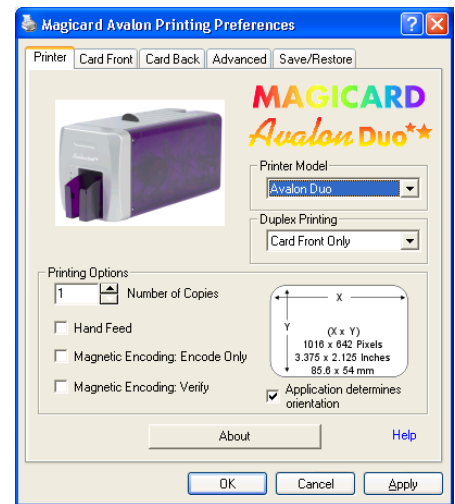
### The Printer Tab

Shows which model of printer you are using by displaying a picture and the model name.



The **Printer Tab** will display a diagram showing which card dimensions are compatible with your printer model, and displays the Printing Options that are related to your printer model.

Printing Options include :-  
Duplex settings (Avalon Duo only),  
Number of Copies, Hand Feed,  
Magnetic Encoding Verify and Encode Only.



The individual settings of the **Printer Tab** are explained in detail below.



## AVALON and AVALON DUO Printer USER MANUAL

### Printing Options:

#### Number of Copies:

Controls the number of times the image is printed when you send a card design to the printer, for example if you set the **number of copies** to '5' and send a single card design to print, the printer will produce 5 identical cards. The **default value** for this option is '1'.

#### Hand Feed:

When enabled, the printer will accept cards fed by hand into the **front entrance of the printer** instead of feeding cards from the card hopper at the rear of the printer; this option is **disabled by default**.

#### Magnetic Encoding: Encode Only:

This option will enable the user to carry out magnetic encoding from a badging application without printing the associated image, this is useful for encoding cards that are already in use. No dye film will be used.

#### Magnetic Encoding: Verify:

When enabled, the printer will self-check (verify) all magnetic encoded cards prior to printing the image - to ensure that encoding has been successful.

Any unsuccessful cards will be re-encoded up to 3 times. If still unsuccessful, the card will be rejected and the printer will give an error message.

Performing verification will increase the time to print but it will improve encoding reliability. In the interest of speed this option is turned off by default.

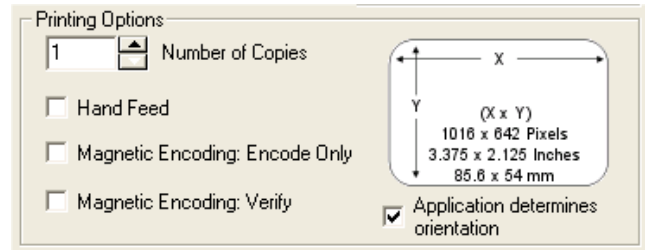
#### Application Determines Orientation:

Almost all software applications provide the user with options to determine page orientation - **landscape or portrait** - when printing.

If your application provides these options – leave the **Application Determines Orientation** box ticked.

If your application is one of the few that do not provide these options – untick the box and choose your desired orientation in the **Card Front** or **Card Back** tabs of this driver.

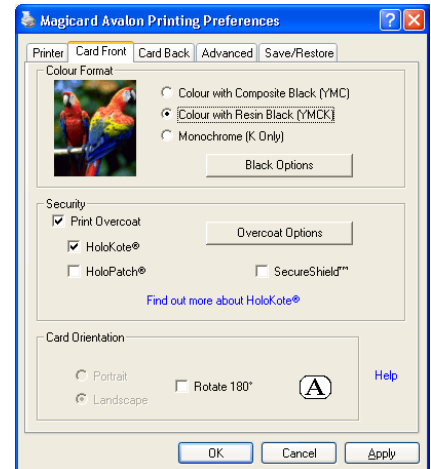
(Tip: the orientation options can usually be found in the 'page setup' or 'badge design' sections of your software application)



## AVALON and AVALON DUO Printer USER MANUAL

### The Card Front & Card Back Tabs

Use the **Card Front and Back tabs** to determine how the **front** and **back** of a printed card will be produced. There are a variety of options that will allow detailed **customization** of ID cards - the **colour format** of printed images, **overcoat security** options, and **orientation** of the printed images.



### Colour Format

There is a small picture of two parrots, this shows the effects the selected **colour format** will have on the printed images; if the picture of the parrots is in colour you have your printer setup to print **full colour** images, if the parrots are black and white then your printer is setup to print in monochrome only.



#### **Colour with Composite Black (YMC):**

When enabled you will be able to print full colour images, and any areas of your card design that are black (RGB value **0,0,0**) including black text and barcodes will be printed with **Composite Black**.

This means that black areas are printed using a **combination** of the **Yellow, Magenta and Cyan** colours from the dye-film ribbon. Use this option if you are printing an image that contains photographs with black areas and your design does not use much black text and you want to keep your printing speeds as fast as possible.

#### **Colour with Resin Black (YMCK):**

When enabled you will be able to print full colour images, and any areas of your card design that are black (RGB value **0,0,0**) will be printed either as a **composite** of the 3 colour panels or **directly** from the **resin black panel**.

There are a number of **Black Options** available for the user to select which parts of the image should be printed with the **resin black panel** - these options should be **experimented** with, as both the **definition** and **intensity** of the **black** can be **varied**. Use this option if your card design uses **barcodes** and/or a lot of black text. The printer will use the resin panel to produce **crisp and clear barcodes and text**.

#### **Monochrome (K Only):**

**This option must be selected if a monochrome dye film (LC3) is being used.**

When enabled, **all images** will be printed in the **single colour resin**. Use this option if you want to photocopy your card design, or if your card design only contains black objects and text, or you are using a **Resin-only dye film** and you want a fast and economical print cycle.

#### **Black Options button:**

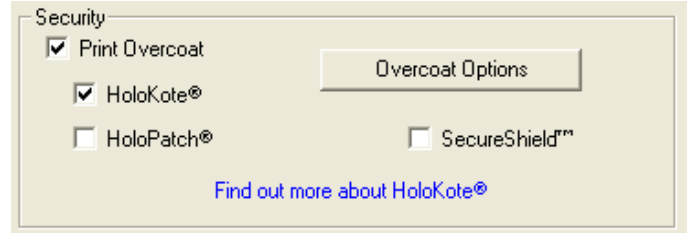
Click on the **Black Options** button to configure how your printer handles the printing of designs that contain **black** (with a RGB value of 0,0,0). Advanced black options are **not available** if your colour format is set to **Colour and Composite Black (YMC)**.

## AVALON and AVALON DUO Printer USER MANUAL

### Security:

#### Print Overcoat:

When enabled, a **thin transparent layer** of Overcoat will be applied to the card design at the **end of the printing process**. This overcoat **protects** the printed image **from fading and scratching**. Applying overcoat to a card design does not add any more cost to the printing process, and it is **enabled by default**. If it is disabled you will be **warned** about removing the protective layer, the only benefit of disabling Overcoat is a minor increase in print cycle speed but it is **not recommended** due to the **loss of protection**.



When **Print Overcoat** is **enabled**, the areas of the card that are protected by overcoat can be configured by clicking on the **'Overcoat Options'** button.

#### HoloKote™:

When enabled, an **anti-copying watermark** is printed across the entire card surface in a 4 x 6 grid (24 evenly spaced icons that are 158 x 149 pixels in size). This watermark becomes visible when the card is viewed at an angle. The patented **HoloKote™ anti-forgery** card protection **eliminates** the threat from **fake IDs** and is **standard** on all Avalon printers. There is **no additional cost** involved in printing **HoloKote** cards.

#### HoloPatch™: This option is **not** available in the Card Back tab.

HoloPatch should only be enabled when you are printing on special HoloPatch cards - these have a blank holographic foil patch in the top right corner of the card. When enabled, one of the HoloKotesecurity logos is highlighted by the highly reflective gold 'super-diffuser' patch, making the logo clearly visible under all lighting conditions. HoloKote™ with HoloPatch™ has a similar appearance to credit card hologram patches.

#### An example of a card with HoloKote™ + HoloPatch™ enabled:

To learn more about these security features please visit the **Magicard website:**

<http://www.ultramagicard.com/products-advantages-security.html>



#### SecureShield™: This option is **not** available in the Card Back tab.

**Warning: this option should only be enabled if you use a laminator in conjunction with your regular printer, if you do not use a laminator then you should leave this option disabled.**

**SecureShield** will perform in a similar way to **HoloKote** in that it will print a **4 x 6** grid of graphic icons onto the card, but unlike HoloKote it will **not** print the **overcoat** between the graphics, this is done so that the HoloKote watermark is clearly visible through the laminate film and so that the laminator film on the Sicura can **stick** to the printed card more effectively.

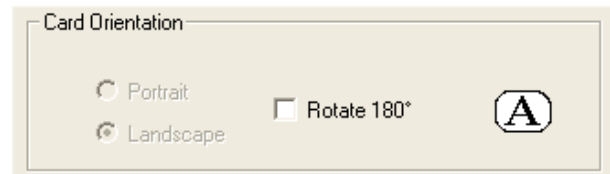
### Card Orientation:

#### Landscape/Portrait:

These options will be disabled if the **Application Determines Orientation** selection is ticked in the **Printer Tab**.

If your software application is one of the few that does not provide the user with options to determine page orientation (**landscape or portrait**) when printing. – untick the **Application Determines Orientation** box and choose your desired orientation here in the **Card Front** or **Card Back** tabs.

(Tip: the orientation options can usually be found in the 'page setup' or 'badge design' sections of your software application)



#### Rotate 180°:

When selected, the card design will be **rotated by 180°** when printed onto the card. This option is deselected by default.

## AVALON and AVALON DUO Printer USER MANUAL

### Black Resin Options:

#### Halftoning (Monochrome Only):

If printing with **Monochrome** dye-film ribbon, you first **must** select the **Monochrome (K Only)** option in the **Card Front/Card Back** tab; this enables these **Halftoning** options.

There are two **Halftoning** options available – they determine how the printer driver translates **colour images into black and white**. Select the option that works best with your card design, if your card design has two colours only (black and white only) then changing the Halftoning options will not have an effect. Error diffusion is the **default** and **recommended** option as it produces the best results.

#### All Black in image is printed with:

This option enables the user to select which of the **black** parts of the image should be printed with the **resin black panel**. They should be **experimented** with, as both the **definition** and **intensity** of the **black** can be **varied**.

**By default** all black objects will be printed in **Resin Black** except areas of black in **pictures**.

It is **not recommended** disabling the 'Pictures use YMC only' option if your card design has **photographs** on it.

It is **possible to configure** whether objects such as **barcodes and text** are printed using **Resin Black or Composite Black**, to do this, select **YMC** in the 'All Black in image is printed with:' drop down list.

Three options will be enabled:

#### Mono bitmaps use K-Resin:

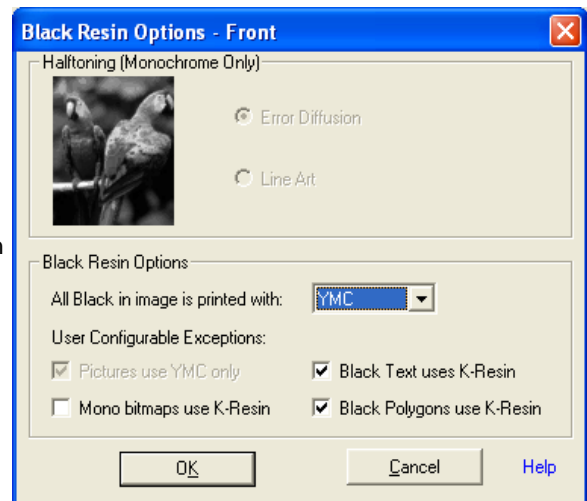
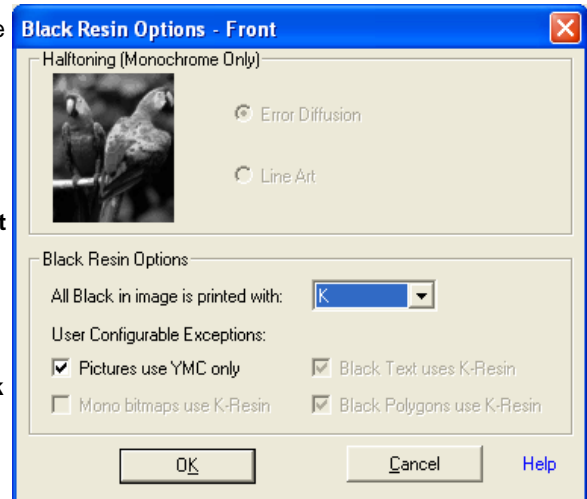
Mono (monochrome) bitmaps are pictures formatted to contain only black (RGB value of **0,0,0**) and white (RGB value of **255,255,255**). Many ID badging applications generate barcodes as monochrome bitmaps, so when enabled, barcodes will be printed in resin black. This **improves clarity** and makes barcodes **easier to read** with conventional barcode scanners.

#### Black Text uses K-Resin:

When enabled, all black (RGB value of **0,0,0**) **text** in your card design will be **printed in Resin Black**. This **improves clarity** and is **highly recommended** if your card design uses black text or 'True Type' **Barcodes**. This option is enabled by default.

#### Black Polygons use K-Resin:

When enabled, all black (RGB value of **0,0,0**) **Polygons** (simple shapes such as **squares, triangles and rectangles**) in your card design will be printed in **Resin Black**. This **improves clarity and contrast** of the polygons. This option is enabled by default.



## AVALON and AVALON DUO Printer USER MANUAL

### Overcoat Options:

By default the printer will print the **transparent protective overcoat** layer over the entire surface area of the card. The **Overcoat Options** window provides advanced controls for **customising** the size and position of the **area covered**, and to **insert 'holes'** (of no overcoat) into that overcoat area.

### Overcoat Area Selection:

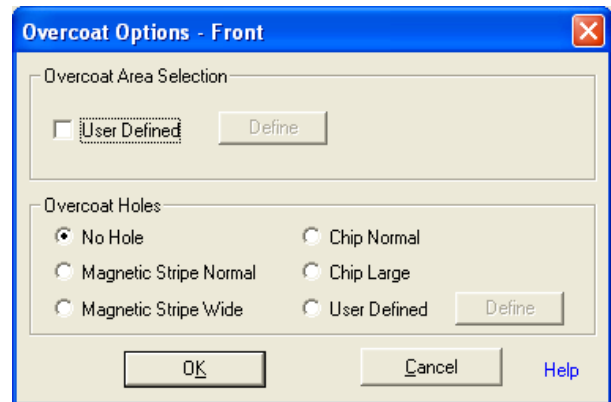
When enabled, the **User Defined** option gives access to the **overcoat area definition window**; click on the **'Define'** Button to access these options. (See below for how to define areas & holes).

### Overcoat Holes:

An **overcoat hole** is an area on the card that will have **no overcoat** printed on it.

A variety of **pre-set Overcoat Holes** can be selected for use with **magnetic stripe** and **smart chip** cards. (The holes will conform to the ISO standard positions).

Alternatively, the **User Defined** option provides advanced controls for creating **customised overcoat holes**, click on the **'Define'** Button to access these options.

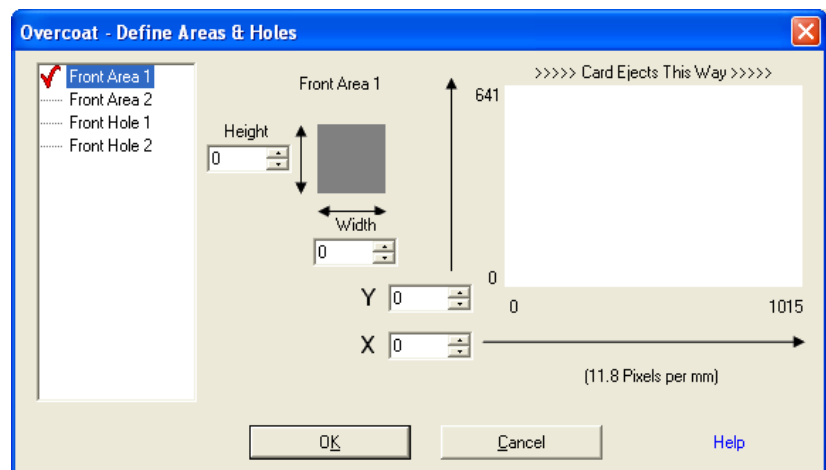


### Overcoat – Define Areas & Holes:

**User Defined Overcoat Areas & Holes** are created by entering the **size** and **position** of the **coverage area or hole**. It is possible to define up to **2 Overcoat Coverage Areas** and up to **2 Overcoat Holes**, these will appear in a preview window in the right hand side, **Areas** will appear as **Grey polygons** and **Holes** will appear as **Black polygons**.

### Defining a custom coverage area (or hole):

- 1) Select one of the available **Profiles** from the list on the left side of the window - its details will be displayed on the right side along with a preview.
- 2) Define the **size (height and width)** of the required **coverage area (or hole)** and it will be displayed as a rectangle in the preview window - use this rectangle to gauge the height and width values correctly.
- 3) Move the rectangle to the **required position**. Positioning is based on a **grid reference** using an **X** (left/right) and **Y** (up/down) axis and moving in units of pixels (Tip: there are 11.8 (approx. 12) pixels per millimetre (mm)). Use the preview as a guide while increasing/decreasing the **X** and **Y** values.





## AVALON and AVALON DUO Printer USER MANUAL

**The Advanced Tab:**

The **Advanced Tab** allows the customization of some of the **advanced technical settings** related to **colour correctness** and **image positioning** on the printed card.

**Colour Control:**

The Colour Correction options provide software 'Gamma Curves' to correct for different characteristics of thermal printheads and dye-films. Three choices are available - **None**, **Gamma 1**, and **Gamma 2**. It is recommended that the setting is left on the default **Gamma 1** option (which gives more accurate colour reproduction).

**Colour Adjustment:**

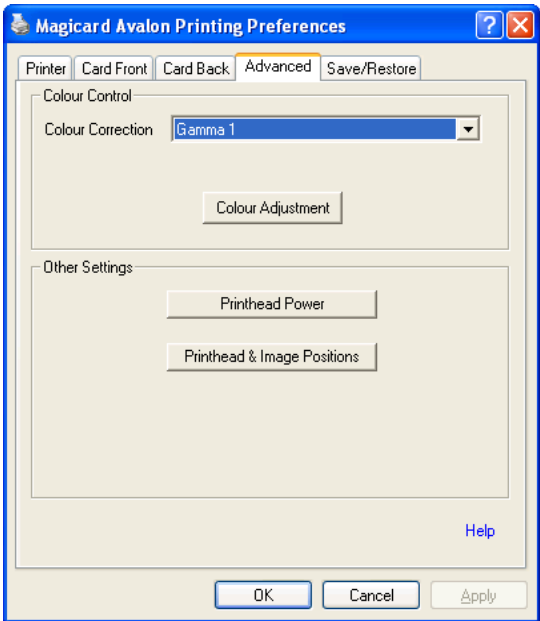
To change the **colour strength** of a printed card, or its **brightness**, **saturation** or **contrast**, click on the '**Colour Adjustment**' button.

**Printhead Power:**

Changing the Printhead power will **increase** or **decrease** the **density** of the colours that are printed on the card, to access the Printhead Power options click on the '**Printhead Power**' button.

**Printhead & Image Positions:**

To **alter** the **position** of the printed image on the card or **add / remove white borders** on a printed card design, click on the '**Printhead & Image Positions**' button.

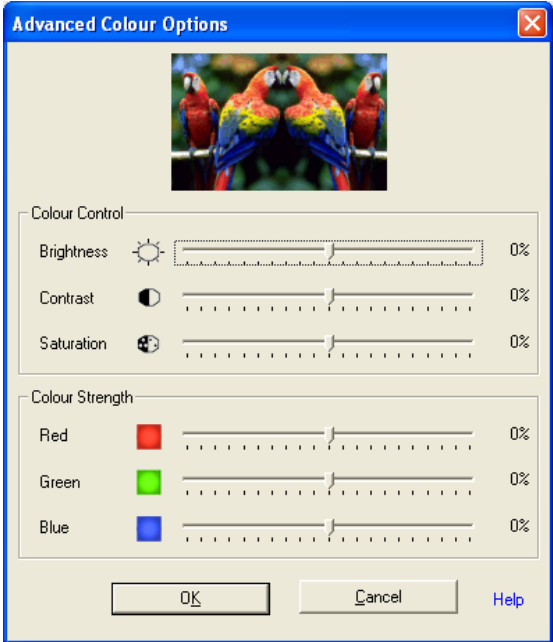


**Advanced Colour Options:**

The **Advanced Colour Options** provide controls for fine tuning the colour output of the printer. The card design can be **darkened**, **lightened**, made **brighter** or appear **faded**, even specific colour levels can be adjusted by changing the position of the **colour strength** sliders.

The **preview picture** at the top of the window will show the results of any adjustments.

**Note:** All colours in an image design are a mixture of red, green and blue (RGB). So any change in the strength of one of these 3 colours (RGB) will affect every colour that is composed using the changed colour, so the results may not be as expected; for this reason it is recommended that colour control and colour strength sliders remain at their default settings.



## AVALON and AVALON DUO Printer USER MANUAL

### Printhead Power:

These options provide control over the degree of **printhead 'heating' power** applied to the cards and dye-film ribbon **during the printing process**.

#### Yellow, Magenta, Cyan (YMC):

An increase or decrease in the YMC Power will result in an increase or decrease in the colour density – images will be **darkened** or **lightened**.

#### Black Resin:

An increase or decrease in the Black Resin Power will result in an increase or decrease in the 'boldness' of black text and barcodes.

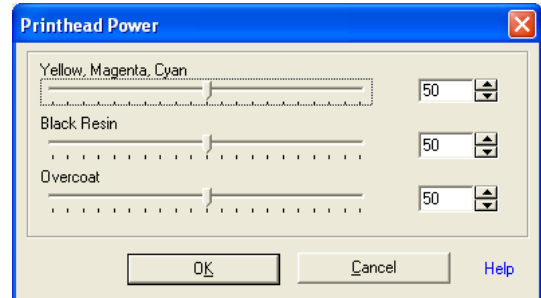
#### Overcoat:

An increase or decrease in the Overcoat Power will result in an increase or decrease in the visibility of the HoloKote anti-forgery images.

**Caution:** Very low Overcoat Power settings can cause side effects such as card images fading over time, and also negate the HoloKote® anti-forgery card protection system.

**Caution:** Very high settings of any of these Printhead Power sliders can cause side effects such as incorrect or distorted colours, breaking of the dye-film ribbon, and even damage to the thermal printhead.

**Tip:** In the event that the dye-film ribbon **breaks** due to **over-heating**, it can be repaired using **Adhesive Tape**; attach the broken section together and then wind up the **black take-up spool** by hand for roughly two full turns. Then, before printing again, **turn the printer off** and back on again and reduce the Power settings so the dye film does not break again.



### Image Position:

The **Image Position** options enable the user to make **small adjustments** to the **position** of the **printed image** on the plastic cards - this can be useful for **eliminating** unwanted **white borders**. All adjustments are with reference to the card viewed in **landscape**.

#### Up/Down:

**Slider moved upwards:** the image will move upwards on the card.

**Slider moved downwards:** the image will move downwards.

The adjustment is calibrated to: **12 steps = 1mm** (approx).

#### Image End:

**Slider moved left:** the End of the Image will move left (closer to the end of the card).

**Slider moved right:** the End of the Image will move right (away from the end of the card).

The adjustment is calibrated to: **12 steps = 1mm** (approx).

**Note** - The Image Start is unaffected.

**Caution:** Moving the Image End slider too far left can result in the image being printed beyond the end of the card – this will cut the dye-film ribbon.

#### Image Start:

**Slider moved left:** the Start of the Image will move left (away from the start of the card).

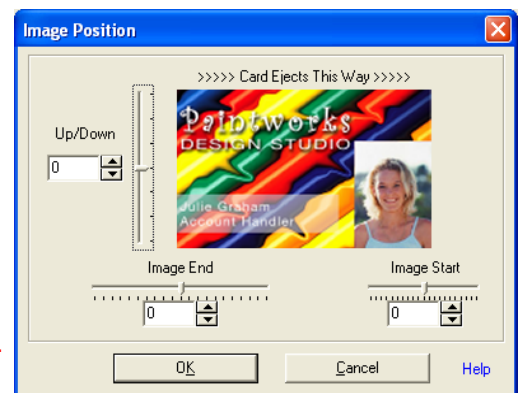
**Slider moved right:** the Start of the Image will move right (closer to the start of the card).

The adjustment is calibrated to: **10 steps = 0.1mm** (approx).

**Note** - Any movement of the Image Start position will have a corresponding effect on the Image End position.

**Caution:** Moving the Image Start slider too far right can result in the image being printed beyond the start of the card – this will cut the dye-film ribbon.

**Tip:** In the event that the dye-film ribbon **breaks** due to **printing beyond the edges of the card**, it can be repaired using **Adhesive Tape**; attach the broken ends together and then wind up the **black take-up spool** by hand for roughly two full turns. Then, before printing again, **turn the printer off** and back on again and change the Image Position settings so the dye film does not break again.



## AVALON and AVALON DUO Printer USER MANUAL

### The Save & Restore Tab:

The **Save & Restore Tab** is used to save your driver settings to a file, restore the settings from a file, or restore the settings to the original defaults.

If you change your driver settings it is recommended that you save these settings to a file, doing so will allow you to:

- Backup and restore your driver settings
  - In case your driver is updated
  - In case your driver settings are changed
  - In case your driver is re-installed
- Migrating your driver settings to other PC systems
- Create driver settings profiles for your card designs

### The Save & Restore Settings:

#### **Restore Settings from File:**

This button is used to load '**Settings Files**' (files with an **.MDS** extension). These contain driver settings that have been saved using the **Save Settings to File** button.

#### **Save Settings to File:**

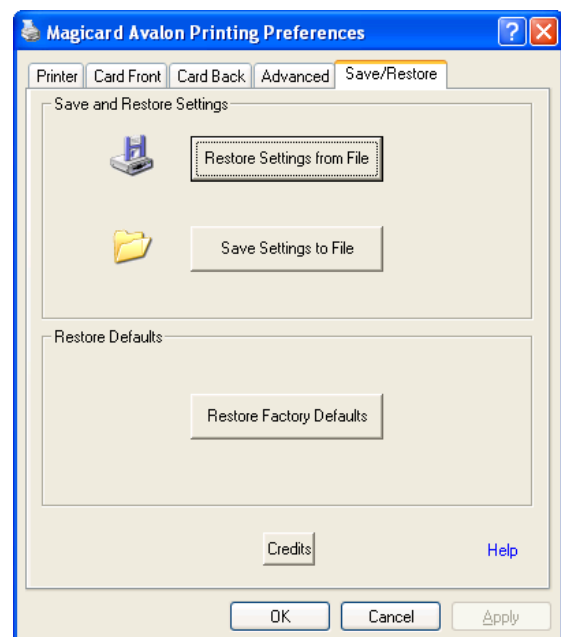
This button is used to **save** the **driver settings** to a file with an **.MDS extension**. This allows for the **backup** of driver settings in case the driver is uninstalled or updated, and has a variety of other possible advantages such as **sharing driver settings between computers** and **creating driver profiles** for different card designs.

### Restore Defaults:

#### **Restore Factory Defaults:**

This button is used to **reset** all the **settings** in the driver to their original default settings. Be sure to **back up** your driver settings if you want to keep a record of them, this can be done by using the **Save Settings to File** button.

**Note** - The driver will ask for confirmation before going ahead with the restore.



## AVALON and AVALON DUO Printer USER MANUAL

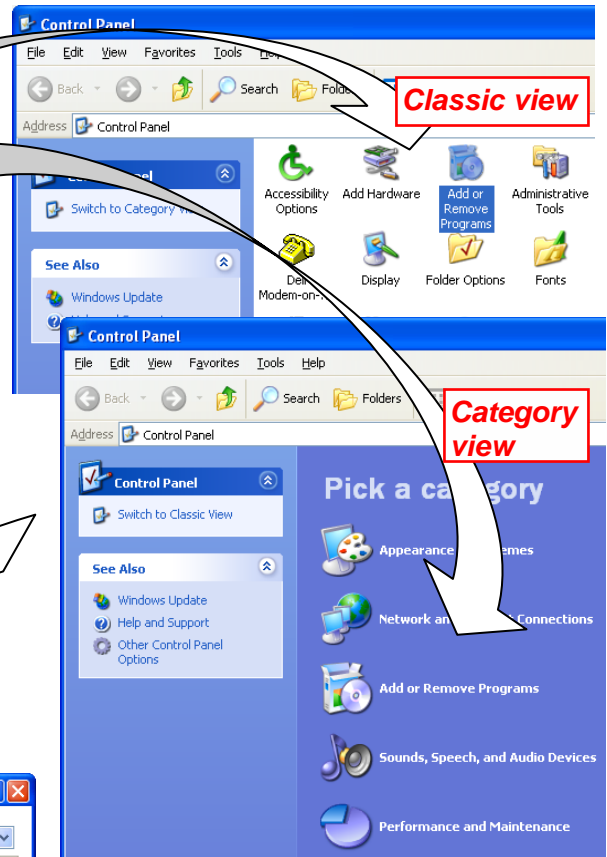
### 9. Uninstalling the *UltraDriver*

To delete the *UltraDriver*:-

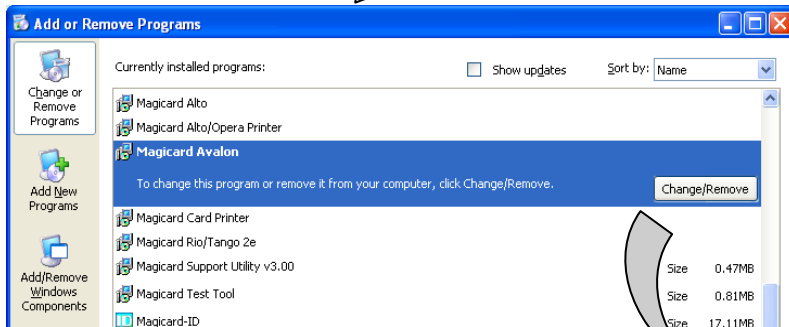
- On the PC, go to "Start" >> "Control Panel"



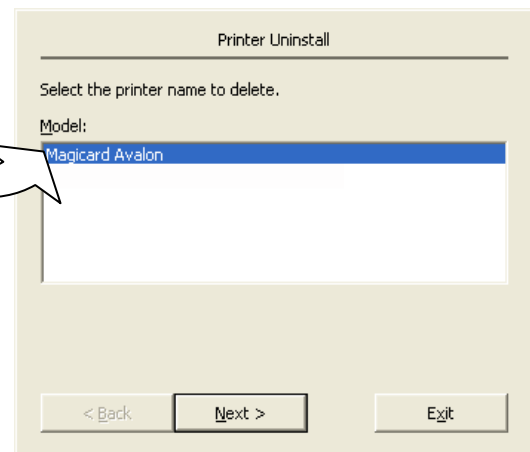
- Then select "Add or Remove Programs"



- Select the "Magicard Avalon" entry, and click on "Change/Remove"



- Choose the "Magicard Avalon" you wish to remove (there may be more than one), and click "Next"



- Lastly - just follow the on-screen prompts!

## AVALON and AVALON DUO Printer USER MANUAL

### 10. Magicard Support Utility

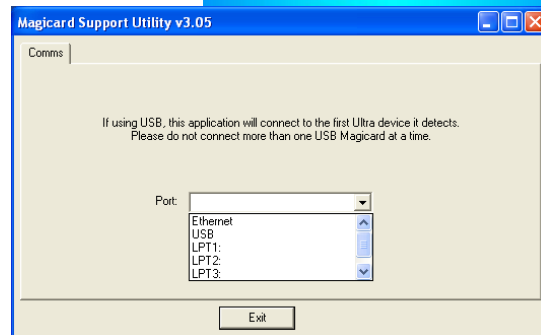
The purpose of this utility is to provide advanced diagnostic and configuration tools for use when contacting your Magicard Technical Support office. However, it can also be used to upgrade the firmware within the printer.

- Install the Magicard Support Utility from the Driver CD

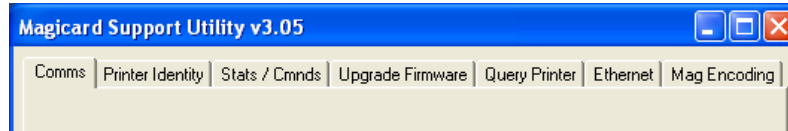
- Then double click on the 'MSU' desktop icon



- Select the port to which the printer is connected

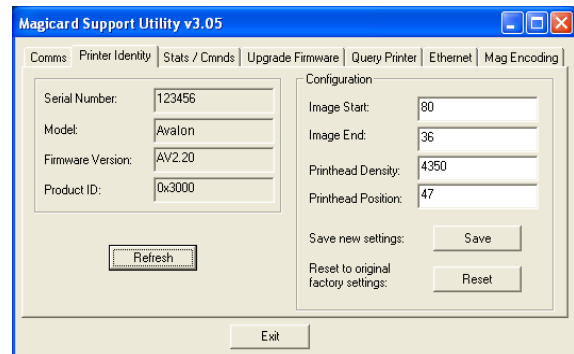


Six new tabs will appear:-



#### Printer Identity:

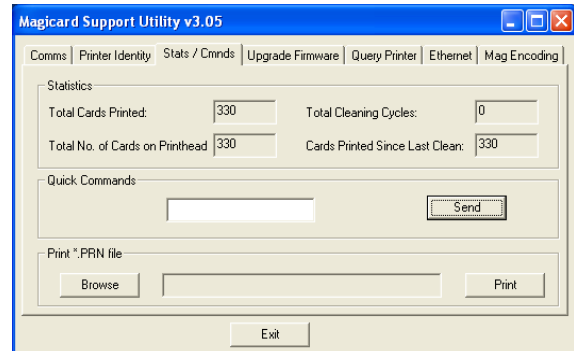
It is recommended that the user does NOT change any of the settings shown in this tab unless requested to do so by Magicard Technical Support.



#### Stats / Cmnds:

This tab contains 3 separate areas:

- Statistics** – shows valuable information on printer usage.
- Quick Commands** – enables the user to send special commands to the printer (usually used for fault diagnosis). Do not use unless requested to do so by Magicard Technical Support.
- Print \*.PRN file** – enables the user to send previously saved print data to the printer.



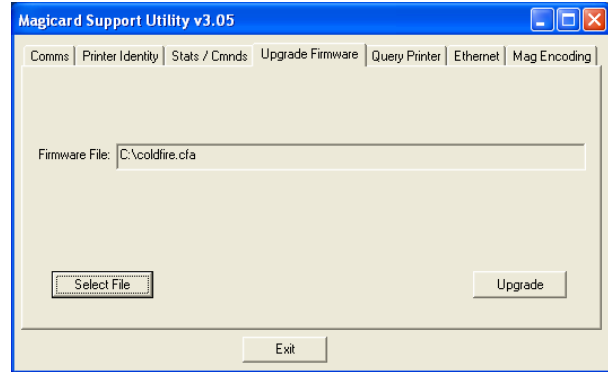


## AVALON and AVALON DUO Printer USER MANUAL

### Upgrade Firmware:

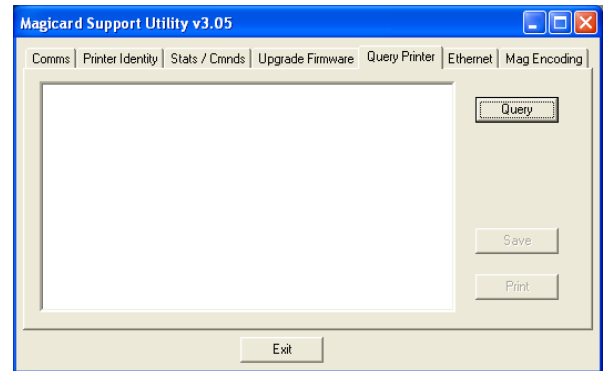
Use the controls in this tab to upgrade the printer's firmware.

**Note** - Latest firmware files can be downloaded from Technical Support section of the Magicard web site at [www.magicard.com](http://www.magicard.com)



### Query Printer:

Collects advanced diagnostic data from the printer. If you experience a problem, you may be asked to email the results of the query to Magicard Technical Support for analysis



### Ethernet:

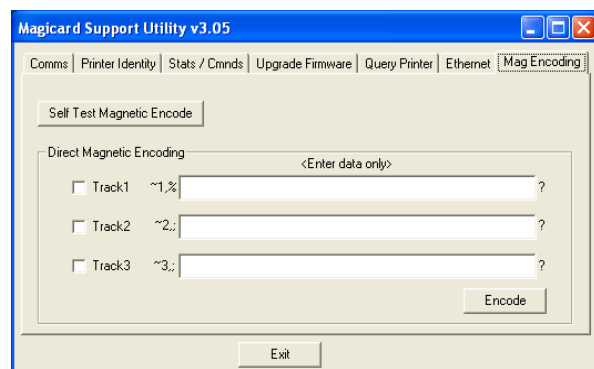
Ethernet connection is not available with Avalon and Avalon Duo printers. The settings are visible because this Support Utility is also used for Magicard Rio 2e and Tango 2e printers which do have this capability.

### **Mag Encoding:** For use with Mag encoding models only.

Self Test Magnetic Encode button – enables the user to confirm the integrity of the printer's mag encoding operation.  
Direct Magnetic Encoding – the user can encode cards directly from this tool.

To use this tool:-

1. Ensure mag stripe cards are loaded in the card hopper.
2. Select the track(s) that you wish to encode and enter the data to be encoded.
3. Click on the 'Encode' button.



## AVALON and AVALON DUO Printer USER MANUAL

### 11. Troubleshooting

**Table 1 - Printer Prints but with Image Quality Problems**

Problem	Probable Cause	Solution
Mis-registration of Colours (Ghosting on Photographs etc)	1. Card is slipping due to dirty rollers.	1. Clean all rollers.(See section 7 of this document).
Small Areas of Wrong Colour (Small areas where 1 or more colour layers have been missed from the image).	1. Dust and debris on surface of the card. (white ovals) 2. Contaminated with oily deposits (darker blotches) 3. Card surface uneven (White patches) 4. Slight cutting of dye film (Jagged scratches) Printhead density too high (Jagged scratches)	1. Ensure cards are kept clean, and protected from dust & debris. 2. Replace cards with clean ones and do not handle print surface. 3. Replace cards. 4. Reduce printhead power setting, or determine which end of card is cutting the film & adjust image start or end position accordingly.
Dark or lighter vertical lines on card (always in the same place)	1. Card striking something during the print process. 2. Card not running smoothly along the platen runway.	1. Check print path is clear 2. Contact Magicard Tech Support for advice on clearing the platen.
Vertical white line down one or both ends of card.	1. Incorrect driver setting. 2. Image page size incorrect. 3. Incorrect image start or end position settings.	1. Ensure the driver is not set to white border. 2. Ensure page size 86.9mm x 54mm with margins at 0 in badging application. 3. Adjust settings in driver.
White line along length of all cards (always in the same place).	1. Printhead has damaged heating elements	1. Contact Magicard Tech Support for advice on printhead cleaning or replacement.

**Table 2 - Dye Film Problems**

Problem	Probable Cause	Solution
Printer does not recognise dye film type. (Print colours may be very pale but with good black text)	1. Dye-film incorrectly loaded 2. Incorrect type of dye-film	1. Reload the dye-film 2. Reload the dye film correctly. (See section 3 of this document).
Printer cannot position the dye film. (Prints colours in wrong places).	1. Dye film incorrectly loaded.	1. Reload the dye film correctly. (See section 3 of this document).
Dye film cutting during the print operation	1. Ribbon sticking to card 2. Image printing over the ends of the card.	1. Ensure cards are not already used. Then lower the printhead power settings. 2. Adjust either the image start if cutting at beginning of film panel, or the image end if cutting at rear of film panel.
Image is printed outside the colour panels. (Puts a coloured band across one end of card).	1. A used roll of dye-film has been fitted. 2. Take up spool wound too loosely.	1. Fit a new roll of film. 2. Remove loose film.
Areas of Dye film peeling off card. Dark mosaic like image.	1. Card has been used and has overcoat layer on it.	1. Use only brand new cards not ones which failed to print fully.

## AVALON and AVALON DUO Printer USER MANUAL

Out of Dyefilm Error	<ol style="list-style-type: none"> <li>1. Out of Dyefilm.</li> <li>2. Dyefilm incorrectly fitted.</li> <li>3. Dyefilm not moving.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace Dye Film.</li> <li>2. Reload the dye film correctly. (See section 3 of this document).</li> <li>3. Check film spools are free to turn.</li> </ol>
Cards printed incorrectly after switching between YMCK and black film	<ol style="list-style-type: none"> <li>1. Failure to re-set driver settings</li> <li>2. A used roll of dye-film has been fitted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set correct the driver settings for Colour Format.</li> <li>2. Replace dye film with a new roll.</li> </ol>

### Table 3 - Card Feed Problems

Problem	Probable Cause	Solution
Cards failing to travel correctly through the printer. Gives error message:- "Card not found".	<ol style="list-style-type: none"> <li>1. Dirty rollers.</li> <li>2. Incorrect card size.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean the rollers. (See section 7 of this document).</li> <li>2. Fit correct cards. (See section 4 of this document).</li> </ol>

### Table 4 - Magnetic Encoding Problems

Problem	Probable Cause	Solution
Magnetic Encoding results are inconsistent	<ol style="list-style-type: none"> <li>1. Card slipping when moving over the recording head.</li> <li>2. Incorrect cards fitted HI-Co / Lo-Co</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean all rollers are clean. (See section 7 of this document).</li> <li>2. Ensure the correct cards (Hi-Co or Lo-Co) are being used.</li> </ol>
Cards do not encode	<ol style="list-style-type: none"> <li>1. Card incorrectly oriented when fed into printer.</li> <li>2. Driver selections are incorrect for encoding.</li> <li>3. Incorrect or defective cards.</li> </ol>	<ol style="list-style-type: none"> <li>1. Position card with the stripe underneath and to the right when inserting into printer.</li> <li>2. Check the Printer driver settings are correct.</li> <li>3. Ensure the correct cards (Hi-Co or Lo-Co) are being used.</li> </ol>

### Table 5 Driver Related Problems

Problem	Probable Cause	Solution
Slow Information download from computer to printer	<ol style="list-style-type: none"> <li>1. Computer polling access control system in background</li> <li>2. Corrupted Driver or spooler</li> </ol>	<ol style="list-style-type: none"> <li>1. Operate from a dedicated PC</li> <li>2. Update with latest driver.</li> </ol>
No information download between PC and Printer but printer can print internal test cards	<ol style="list-style-type: none"> <li>1. Driver settings incorrect.</li> <li>2. Incorrect port selected.</li> <li>3. Driver corrupted</li> </ol>	<ol style="list-style-type: none"> <li>1. Using MSU check communication between PC and printer, if OK check the driver settings.</li> <li>2. Check port selection in driver properties.</li> <li>3. Update with latest printer driver.</li> </ol>
Prints stuck in spooler	<ol style="list-style-type: none"> <li>1. Printer communication blocked.</li> <li>2. Damaged file is at front of print queue.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clear the spooler and reset the printer.</li> <li>2. Delete the damaged print if necessary, and reset the printer.</li> </ol>

## AVALON and AVALON DUO Printer USER MANUAL

### 12. Warranty

#### Limited Warranty Information

- 1). **Coverage:** Ultra Electronics Ltd Warrants that the MAGICARD printer shipped with this Warranty statement will conform to the manufacturers specifications and be free from defects in materials or workmanship for a period of **2 years** in **E.U.** and **USA** (1 year elsewhere) from the date of original purchase by the user, but there are additional conditions on the printhead Warranty (see paragraph 2).
- 2). **Limited Printhead Warranty:** Ultra warrants that, under normal use and service, thermal printheads will be free from defects in material and workmanship for a period of **2 years** in **E.U.** and **USA** (1 year elsewhere) from the date of original purchase or for a quantity of 10,000 printed cards, whichever comes first, provided that Ultra-approved card media is utilised. If a Warranty claim is submitted for a defective printhead, Ultra will have the right to inspect the printhead and samples of the printed and blank ID cards used with it for the purpose of verifying that the claimed defect has not been caused by non- Ultra approved media, or by foreign particles or substances which have caused chemical or physical damage. Ultra's decision in any such claims shall be final.
- 3). **Warranty Claims:** If the MAGICARD printer proves defective during this period, please contact the Ultra Service Center, at the address and telephone/fax number given below. The Ultra Service Center personnel may first ask you to carry out certain simple checks to confirm the nature of the problem, and if a return is appropriate they will give you a Return Authorisation Number and consignment instructions to the appropriate repair center. Ultra will, at its option, repair or replace the defective parts at no charge to the customer.
- 4). **Warranty Limitations:** The Warranty does not apply to MAGICARD printers that have been:
  - Damaged through physical or electrical mishandling.
  - Damaged through operation in environments which are outside normal office conditions in terms of corrosive atmosphere, temperature, humidity, shock or vibration.
  - Improperly installed or interfaced to other products which may exhibit software problems or expose the MAGICARD to improper voltages or control signals.
  - Fitted with dye film rolls from any source other than Ultra Electronics, or have been used to print on anything other than card surfaces which are approved by Ultra and which will generally be made of PVC, be completely flat, and be free of harmful particles or substances.
  - Serviced or interfered with by anyone other than an Ultra Authorised Service provider.
- 5). **Shipping:** Insurance and shipping costs incurred in sending the MAGICARD printer for Warranty service are the responsibility of the customer. Whenever possible Ultra Service Centres will use the same class of shipping service selected and paid for by the customer to return the printer. Return shipping costs from Ultra to the customer will be at Ultra's expense. After obtaining the Return Authorisation Number as described above, the printer should be securely packed in its original packaging with proof of date of purchase and a note describing the problem and quoting the Return Authorisation Number. The printer must be sent to the service center address supplied with the Return Authorisation Number by the main service center. This address may be different to the address listed below, but will generally be closer to you. Please also mark the Return Authorisation Number on the outside of the shipping carton. All customs duties and taxes, if applicable, are the responsibility of the customer.
- 6). **Applicability:** The Warranty and remedy provided above are exclusive and in lieu of all other warrants, either express or implied, including but not limited to, implied warranties of merchantability and fitness for a particular purpose. Any statements or representations made by any other person or firm are void. Neither Ultra Electronics Ltd nor its affiliates shall be liable for any loss, inconvenience, or damage, including direct, special, incidental, or consequential damages, resulting from the use or inability to use the Ultra product, whether resulting from breach of Warranty or other legal theory even if Ultra has been advised of the possibility of such damage or loss.
- 7). This Warranty is governed by the laws of England. Any dispute arising out of or relating to this Warranty shall be submitted for arbitration of this dispute or disputes pursuant to the rules and regulations of the UK Arbitration Act. This Warranty gives you specific legal rights, and you may also have other legal rights which vary from country to country so the above limitations and exclusions may not apply to all customers.



# MAGICARD

[www.ultramagicard.com](http://www.ultramagicard.com)

## AVALON and AVALON DUO Printer USER MANUAL

### 13. Technical Support, Service, and Warranty Enquiries

If you experience a problem or have warranty enquiries, call or fax our service center or visit our web site at ([www.ultramagicard.com](http://www.ultramagicard.com))

**CALL EU +44 (0) 1305 762 115**

Ultra Electronics Limited  
MAGICARD Service Centre  
Waverley House, Hampshire Road, Granby Estate  
Weymouth, Dorset, DT4 9XD, UK  
Fax: +44 (0) 1305 777 904  
Email: [customer\\_service@ultra.co.uk](mailto:customer_service@ultra.co.uk)

**CALL USA (425) 556 9708  
or 877 236 0933 (toll free)**

Ultra Electronics Inc.  
MAGICARD US Service Center  
6711 - 176th Avenue NE  
Redmond, WA 98052, USA  
Fax: (425) 556 3962  
Email: [ussupport@ultramagicard.com](mailto:ussupport@ultramagicard.com)



## AVALON and AVALON DUO Printer USER MANUAL

### 14. Contact Us (Sales):

#### Sales and Service Center for North and South America



Ultra Electronics Card Systems  
6711 - 176th Avenue NE,  
Redmond, WA 98052, USA.

Tel: (425) 556-9708  
Fax: (425) 556-3962  
Email: [USsales@UltraMagicard.com](mailto:USsales@UltraMagicard.com)  
Web: <http://www.ultramagicard.com>

#### Sales and Service Center for the UK, Europe and Rest of World



Ultra Electronics Card Systems  
Waverley House, Hampshire Road,  
Granby Estate, Weymouth,  
Dorset, DT4 9XD UK.

Tel: +44 (0) 1305 784738  
Fax: +44 (0) 1305 777904  
Email: [UKsales@UltraMagicard.com](mailto:UKsales@UltraMagicard.com)  
Web: <http://www.ultramagicard.com>

#### Sales for Latin America



Contact: Luis de la Cruz  
Office: 425-556-9708  
Cell: 617-501-0078  
Fax: 425-556-3962  
Email: [ldelacruz@ultramagicard.com](mailto:ldelacruz@ultramagicard.com)

#### Sales for Europe



Contact: Joyashree Ghosh  
Tel/Fax: +331 60 19 22 08  
Mobile: +336 82 99 59 21  
Email: [joyashree.ghosh@wanadoo.fr](mailto:joyashree.ghosh@wanadoo.fr)

#### Sales for Germany & Austria



Magicard Master Dealer for Germany and Austria  
HEYDEN-SECURIT GmbH  
Am Stadtwalde 47  
D-48432 Rheine

Tel/Fax: + 49 (5971) 9876-0  
Mobile: + 49 (5971) 9876-54  
Email: [info@heydensecurit.de](mailto:info@heydensecurit.de)  
Web: <http://www.magicard.de>

## AVALON and AVALON DUO Printer USER MANUAL

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### Sales and Service for Russia

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AAM Systems  
14 Krasnokazarmennaja Str.,  
Moscow, 111250, Russia.

Tel: (007) 902 677 4394  
Fax: (007) 095 362 7262  
Email: [aam@aamsystems.ru](mailto:aam@aamsystems.ru)  
Web: [www.aamsystems.ru](http://www.aamsystems.ru)

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### Sales and Service for Singapore & Malaysia

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Paclin Office Products PTE Ltd  
Blk 3023, Ubi Road 3,  
#04-03/04/05 Ubiplex,  
Singapore, 408663.

Tel: (00 65) 67429255  
Fax: (00 65) 6742 8744  
Email: [sales@paclin.com.sg](mailto:sales@paclin.com.sg)  
Web: [www.paclin.com.sg](http://www.paclin.com.sg)

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# AVALON and AVALON DUO Printer USER MANUAL

## 15. EMC

### **Federal Communications Commission (FCC) Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### **Canadian Department of Communications Statement**

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.

### **EU Declaration of Conformity**

The EU Directives covered by this Declaration

89/336/EEC Electromagnetic Compatibility Directive, amended by 92/31/EEC & 93/68/EEC

72/23/EEC Low Voltage Equipment Directive, amended by 93/68/EEC

The Product Covered by this Declaration

Magicard Rio 2/Tango 2 Card Printer

The Basis on which Conformity is being Declared

The product identified above complies with the requirements of the above EU Directives by meeting the following standards

EN 55022:1998+A1:2000 - Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement

EN61000-3-2:2000 – Limits for harmonic emissions

EN61000-3-3:1995+A1:2001 – Limitation of voltage fluctuations and flicker in LV supply systems.

EN 55024:1998+A1:2001+A2:2003 – Information technology equipment – Immunity characteristics – Limits and methods of measurement.

BS EN 60 950-1: 2001 - Safety of Information technology Equipment Including Business Equipment.

The technical documentation required to demonstrate that the product meets the requirements of the Low Voltage Directive has been compiled and is available for inspection by the relevant enforcement authorities.